

ON-FIELD COGNITIVE TESTING

ORIENTATION

Ask the athlete the following questions.

- What stadium is this? What month is it?
- What city is this? What day is it?
- Who is the opposing team?

ANTEROGRADE AMNESIA

Ask the athlete to repeat the following words.

Girl, dog, green

RETROGRADE AMNESIA

Ask the athlete the following questions.

- What happened in the prior quarter/period?
- What do you remember just prior to the hit?
- What was the score of the game prior to the hit?
- Do you remember the hit?

CONCENTRATION

Ask the athlete to do the following.

Repeat the days of the week backward (starting with today).

Repeat these numbers backward:

63 [36 is correct] 419 [914 is correct]

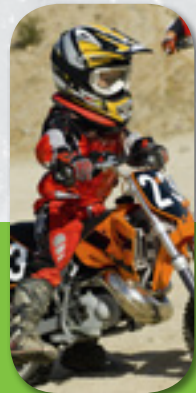
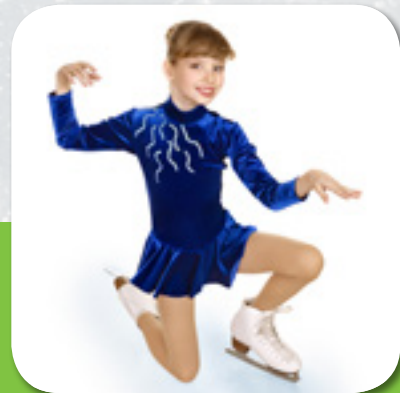
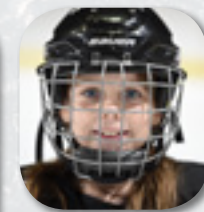
WORD LIST MEMORY

Ask the athlete to repeat the three words from earlier.

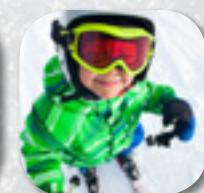
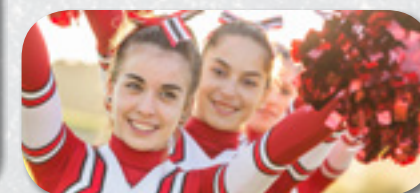
[girl, dog, green]

Any failure should be considered abnormal.

Consult a physician following a suspected concussion.



PREVENTING SPORTS INJURY



UPMC | SPORTS MEDICINE

HEADS UP PITTSBURGH INCLUDING Sports Concussion Information Facts and Resources

PITTSBURGH PENGUINS FOUNDATION

ACKNOWLEDGEMENTS

COMMUNITY COLLEGE OF ALLEGHENY COUNTY

Elizabeth Johnston
Director of Public Relations

Mike O'Brien
Director of IT Services

John Boehm
Assistant Director of Business Affairs
North Campus

Patricia Martier
Coordinator of Student
Accounts/Business Assistant
South Campus

Margaret Sheehy
Sr. Administrative
Secretary/Adjunct Instructor
Boyce Campus

COMMUNITY COLLEGE OF BEAVER COUNTY

Melissa Denardo EdD
Provost
Vice President of Learning and Success

Diane Loverich
Program Manager of Continuing Education

CDC
Centers for Disease Control & Prevention

UPMC SPORTS MEDICINE

Brian F. Hagen, DPT. MS. OCS. FAAOMPT
Vice President Network
Services CRS /UPMC
Program Administrator- UPMC
Sports Medicine

Michael "Micky" Collins, PhD
Clinical and Executive Director
Sports Concussion

Joseph McShane, MS, LAT, ATC, PES
Concussion Outreach Coordinator

Kelly A. Anderson DO
Assistant Professor

Jeffrey Lucchino, MS RDN CSSD
UPMC Sports Medicine Sports Dietitian

Jonathan French, PsyD
Clinical Neuropsychologist

Tara Ridge, MS, PT, SCS
Director Young Athlete Program
Centers for Rehab Services

**Department of Athletic
Training & Development**
UPMC Sports Medicine

PITTSBURGH PENGUINS FOUNDATION

Dave Soltesz
President

Amanda Susko
Director of Foundation Programs

Erin Halley
Graphic Designer

PREVENTING SPORTS INJURY



TABLE OF CONTENTS

| | | |
|---|--|----|
| Acknowledgements | Concussion Testing | 33 |
| Preventing Sports Injury | Concussion Prevention, Recognition and Response | 34 |
| Foundation Initiatives | BASELINE Testing | 38 |
| Sports Injury Prevention | Facts About Concussions | 39 |
| Equipment | Concussion Recovery Process | 41 |
| Strength and Conditioning | Post-Concussion Syndrome | 47 |
| Conditioning Exercises | Action Plan | 49 |
| Stretching | Parents HEADS UP Checklist | 51 |
| Stretches Utilizing the Duraband. | How can I tell if my child is injured? | 52 |
| Utilizing the Balance Disc. | Crossover Benefits | 54 |
| Performance Eating for Athletes | Guidelines for Preventing H1N1. | 55 |
| Acute and Overuse Injury Prevention | Sportsmanship. | 57 |
| Education and Baseline | | |

FOUNDATION INITIATIVES

LEARN TO PLAY

In partnership with Sidney Crosby, Reebok and DICK'S Sporting Goods, the program has provided over 7,200 full sets of head-to-toe equipment for free since 2010.

HEADS UP PITTSBURGH

Through our concussion awareness and testing program, 17,000 young athletes have been baseline tested - including athletes from 30 different sports. In addition, the Penguins Foundation purchased 4,000 neck strengthening kits, which were provided free to athletes. Finally, the Penguins Foundation supports research projects through UPMC dealing with the reduction of concussions.

HOCKEY IS FOR EVERYONE

The Penguins Foundation provides substantial financial support to developmental hockey programs including The Mighty Penguins, Steel City Icebergs and Pittsburgh I.C.E. to further the Hockey is for Everyone league initiative.

PROJECT POWER PLAY

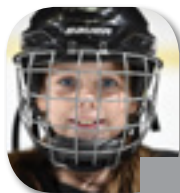
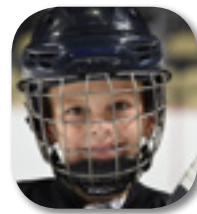
The \$2.3 million project, a joint effort funded by Highmark and the Penguins Foundation, Project Power Play built 12 regulation dek hockey rinks impacting 3,600 players in the Pittsburgh region.

PENSFIT

The Penguins Foundation funded free full sets of street hockey equipment to 600+ elementary schools and community centers impacting 150,000+ students. Schools report that over 90% of students have used the equipment.

TABLETS IN EDUCATION

The Penguins Foundation distributed 3,900 Kindle Fires with shock covers and more than \$250,000 in educational apps and books to over 200 area elementary schools and special needs programs.



THE MISSION OF THE PENGUINS FOUNDATION IS
To actively promote
physical well-being,
encourage **teamwork**,
stress the value of **education**,
and provide essential
life skills to young people
in our community
through **youth hockey**
and other **activities**.

SPORTS INJURY PREVENTION



Young athletes are particularly susceptible to injury because they often participate in multiple sports at high levels of competition while their bodies are still maturing.

As a result, players are at risk for specific injury patterns – some of them avoidable.

According to the American Academy of Pediatrics, more than 3.5 million kids ages 14, and under are injured each year while playing sports or during recreational activity. The good news is that many of these injuries can be prevented. Preseason screening, sport-specific conditioning, parents, players, coaches and administrators, educational programs, proper equipment, safe playing environment and enforcement of the rules, nutrition, warm-ups and stretching are all successful means of reducing the frequency and severity of sports and recreation related injuries among children.

Pre-participation Physical Evaluations (PPE)

Make sure your child receives an annual physical screening before playing sports. PPEs help identify any underlying conditions young athletes may have and help parents, coaches and doctors make more informed decisions about physical activity and competitive play of their athlete. Parents need to talk to their child's doctor and ask them to perform the full pre-participation evaluation, updated and recommended by the American Academy of Pediatrics.

A COPY OF THIS FORM IS AVAILABLE ON THE AMERICAN ACADEMY OF PEDIATRICS WEBSITE AT

<https://www.aap.org/en-us/professional-resources/practice-support/Documents/Preparticipation-Physical-Exam-Form.pdf>

Parents, Players, Coaches and Administrators Education

In partnership with UPMC Sports Medicine, the Pittsburgh Penguins Foundation firmly believes that injury prevention starts with broad based educational programs. During the upcoming year UPMC Sports Medicine and the Pittsburgh Penguins Foundation will host a series of seminars on sports injuries and concussions at regional Allegheny Community College Campuses.

These seminars provide coaches, players, administrators and parents with ways to keep young athletes healthy and injury free. We will suggest establishing safety guidelines that athletes, parents and coaches will follow such as hydration breaks, learning ways to prevent, recognize and/or respond to acute and overuse injuries, including concussions. Also, we will offer courses in first aid treatment for coaches and parents.

TARGET AUDIENCE – Parents *[guide them in decision making]* and athletes *[9-15 years of age]*

EQUIPMENT



When children play active sports, make sure they use protective gear, such as helmets, wrist guards and knee and elbow pads – in addition to any other sports gear appropriate to their activity or player position. During informal recreation activities, children should also always wear helmets when recommended, especially while participating in activities such as in-line skating and biking.

Be sure that sports protective equipment is maintained properly and is in good condition. Inspect for missing or broken buckles or compressed or worn padding. Poorly-fitting equipment may be uncomfortable and may not offer proper protection.

HELMETS

Things to consider when purchasing a helmet.

Protection

A helmet should fit snug to prevent any shifting and maximize protection. Make sure the chinstrap can be adjusted so it gently makes contact under the chin when fastened. Check the rules by which you play for the requirements.

Comfort

You should always look for equipment that feels comfortable. Although most helmets are lined with a protective foam, some helmets will feel better than others. Try on different brands of helmets for fit and comfort.

Fit

With your helmet opened to its largest setting gradually begin to downsize the helmet until a comfortably snug fit is achieved. The helmet should rest on the head so that the rim is one finger width above the eyebrow and making contact with the top of your head.





MOUTH GUARDS

- The stock mouth guard is typically the least expensive mouth guard available in most sporting goods stores, yet it offers the least amount of protection. Stock mouth guards are not adjustable and do not conform to the athletes' teeth or mouth; therefore they are likely to either slip off the mouth if too big, or pinch the gums, causing discomfort.
- "Boil and Bite" mouth guards are available in sporting goods stores, and are also considered relatively inexpensive. The difference between a stock mouth guard and a boil and bite mouthguard is substantial. Hot water is all you need to adjust the plastic comfortably around the teeth. Keep in mind that forming a mouth guard correctly around the teeth and gums is not always as easy as it may seem.
- Custom-fit mouth guards are obtained through most dental offices. Available in as little as one week, the first appointment involves taking an impression of the upper teeth to be sent to the dental laboratory

where the mouth guard will be fabricated. A triple laminate mouth guard offers the necessary protection, yet is thin enough to allow for optimum air intake. Custom mouth guards allow for slight adjustments, as requested by the players, to satisfy their preference. Dentists stress that in order to have optimum protection, the mouth guard should involve all of the upper teeth extending from molar to molar. Previous guidelines suggested that a mouth guard made to extend from one maxillary cuspid to the other, would provide sufficient coverage. Mouth guards that do not extend from molar to molar do not protect the back teeth when the player forcefully clenches during impact, resulting in the possible fracture of the back teeth.

To replant a tooth, including follow-up treatment, can cost as much as \$5,000. Athletes that do not have the teeth properly replanted may face a lifetime of increased dental costs. Plastic mouth guards help prevent injury to the mouth, teeth, lips, cheeks and tongue. Although it's possible to lose a tooth even with a mouth guard, wearing one greatly reduces the risk. According to the National Youth Sports Foundation for Safety, an athlete is 60 times more likely to sustain damage to the teeth when not wearing a protective mouth guard.

PRACTICE



Warm up to prepare the body for activity.
Light jogging increases the blood flow to the muscles.

Some say "Practice Makes Perfect." But what's really important to reinforce to a young athlete is the concept of "perfect practice." For example, teaching and reinforcing appropriate tackling technique is important in preventing injuries in football and soccer, and teaching appropriate throwing mechanics is important in preventing injuries in baseball and softball. Young athletes should also emphasize safe conditioning to improve overall physical fitness; being in good condition can protect participants from injury.

Some important tips to consider during practice

- Warm up to prepare the body for activity.
(Light jogging increases the blood flow to the muscles)
- Stretch the lower body & upper body, including the back.
- Wear all of the proper protective equipment designed for each position.
- Know the rules of the game and abide by them.
- Train different muscles in the off-season to make the body stronger, more coordinated, and flexible.
- Maintain proper nutrition and hydration to help you perform better during training and for faster recovery.

STRENGTH AND CONDITIONING



Use proper training and technique.

Coaches and athletic trainers are there to help teach proper technique and avoid injuries. It is very important to have your athletes listen and adhere to their instruction. Establishing and adhering to rules and procedures can help prevent injury. Most overuse injuries are preventable and occur because of improper technique or training programs. Before beginning any training program or activity, work with a physician and/or sports medicine professional to make sure the program is age-appropriate and being performed correctly.



Increase training gradually.

When deciding when and how much to push your athletes to the next level, remember the 10 percent rule: do not increase training activity, weight, mileage or pace by more than 10 percent per week. This allows the body ample time to recover. Keep your expectations and your athlete's expectations in check.

CONDITIONING EXERCISES



Balance Drills

- Stand on one foot with eyes closed for as long as you can.
- Single-leg squats. Progress to single-leg squat, hopping from leg to leg.

Medicine Ball Twists/Toss

- Turn sideways to a partner and rotate your trunk and throw the ball. Twisting and throwing builds torso strength and dynamic stability.

Aerobic Exercise

- At least 30 minutes of aerobic exercise three to four times a week, such as running, bicycle riding, stair climber, or elliptical. Build your heart and lungs so you'll have plenty of wind to move across the ice.

Box Jumps

- Build explosive leg strength and balance by jumping laterally over cones or boxes.



STRETCHING



Children who participate in sports or other physically demanding activities should stretch to prevent injuries. Stretching helps young athletes prevent muscle tears and pulls. Stretching also helps a child's joints move through a full range of motion. Before stretching, kids should do a low-intensity aerobic exercise, such as jogging or jumping jacks. Stretching cold muscles can also lead to injuries. The warm-up phase should not cause fatigue. Kids should stretch to a point of a gentle pull, not pain, and should stretch before and after exercising. Stretching after a workout helps avoid stiffness and speeds the recovery of muscles.

Stretching before practice is essential. Not only does it allow you to stretch your muscles, but your range of motion is increased with the right warm-up. By doing these stretches, the athlete will be able to increase their flexibility and their athletic performance.



INSTRUCTIONS

- 1 > Do high knee walks to stretch the lower part of the body. Pull your leg up to your chest as you slowly walk forward. Keep your head up and back straight. Lower your leg as you step forward and lift the other one up.
- 2 > Warm up your hips by performing a long stride. Start by standing with both feet together. Step out as far as you can and lower your hips toward the floor. Keep your back straight and your head up. Bring your foot back and repeat with the other foot.
- 3 > Run forward and kick your butt with your heels. This will get your quads, hips and hip flexors warmed up. Keep your upper body, back and head up.
- 4 > Stretch your buttocks and hamstrings by doing straight leg toe touches. Keep your back straight. Lift one leg up – keeping it straight – and attempt to touch it with your fingers. Repeat with the other leg.
- 5 > Stride to the side. Stand with both feet together and your knees slightly bent. Step out to the side, keeping your knees bent. Feel the stretch in your groin area. Repeat by stepping out in the opposite direction.
- 6 > Reach to the side. Lateral side stretches help warm up your upper body. Stand with your feet slightly apart. Bend to the side, holding the opposite arm above your head. Avoid leaning forward.



STRETCHES UTILIZING THE DURABAND

LOWER BODY



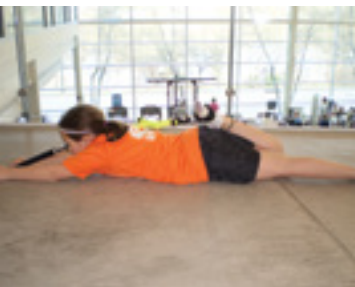
Calf Stretch

- 1 > Place loop of Dura-Band® strap over the ball of one foot.
- 2 > Hold handle of the Dura-Band® with both hands and pull foot towards shin.
- 3 > Pull the toes toward the shin and then releasing tension 4 times.
- 4 > On the fifth time, hold for 20 to 30 seconds with toes toward shin.



Hamstring Stretch

- 1 > Place the strap of the Dura-Band® around the ball of one foot, and then lie back on floor.
- 2 > Hold handle with both hands while keeping upper body on the ground.
- 3 > Raise leg without bending the knee while pulling on the Dura-Band®. Try to keep the other leg flat on the ground.
- 4 > Pull the leg towards the torso and then release the tension 4 times.
- 5 > On the fifth time, hold 20 to 30 seconds with leg extended and pulled towards torso.



Quad/Hip Flexor Stretch

- 1 > Place the strap of the Dura-Band® over the ball of one foot, then lie on your back.
- 2 > Hold the handle of the Dura-Band® with the same hand as the foot and pull foot towards shin.
- 3 > Then turn over onto your stomach and bring the strap over your back and shoulder.
- 4 > Pull the foot towards the head and then releasing tension 4 times.
- 5 > On the fifth time, hold for 20 to 30 seconds with bent leg being pulled towards the head.



Abductor Stretch

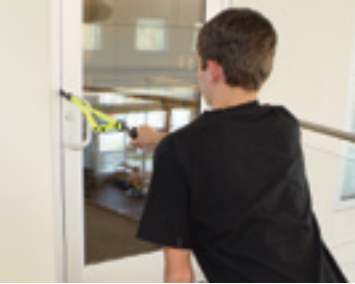
- 1 > Place the strap of the Dura-Band® around the ball of one foot, and then lie back on floor, legs straight.
- 2 > Bring the foot without the Dura-Band® towards the shin.
- 3 > Raise the extended leg (with the Dura-Band® in the opposite hand) towards the torso. Same as the Hamstring stretch.
- 4 > Bring your extended leg across your body while keeping tension on the Dura-Band® with your opposite hand.
- 5 > Let your leg relax towards the ground without bending at the knee and hold it there for 20 to 30 seconds.



Adductor Stretch

- 1 > In the same position as the Abductor stretch, place the strap of the Dura-Band® around the ball of one foot, and then lie back on floor, legs straight.
- 2 > Bring the foot without the Dura-Band® towards the shin.
- 3 > Raise the extended leg (with the Dura-Band® in the same hand) towards the torso. Same as the Hamstring stretch.
- 4 > Lower your extended leg to the outside of your body while keeping the tension on the Dura-Band® with your same-side hand.
- 5 > Let your leg relax towards the ground without bending the knee and hold it there for 20 to 30 seconds.

UPPER BODY



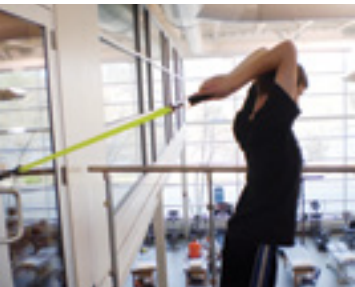
Latissimus Dorsi Stretch

- 1 > Anchor the Dura-Band® about shoulder height by closing the strap in a doorway.
- 2 > With one hand holding the handle, back up until the arm is straight and no slack in the Dura-Band®.
- 3 > Bend over and put your weight on your heels, leaning back slightly to put tension on the Dura-Band®.
- 4 > Hold this position for 30 seconds.



Shoulder Mobility Stretch

- 1 > Anchor the Dura-Band® about shoulder height by closing the strap in a doorway.
- 2 > With one hand holding the handle, back up until the arm is straight and no slack in the Dura-Band®.
- 3 > Bend over and put your weight on your heels, leaning back slightly to put tension on the Dura-Band®.
- 4 > In this position, do 10 small circles clockwise and then 10 small circles counter-clockwise.



Triceps Stretch

- 1 > Anchor the Dura-Band® about Hip height by closing the strap in a doorway.
- 2 > Hold the handle of the Dura-Band® in both hands and turn so you are facing away from the door.
- 3 > Bring your hands over your head and behind your neck, your arms should be by your ears and your elbows are pointing in front of you.
- 4 > Holding this position, lean forward slightly against the resistance of the Dura-Band®
- 5 > Hold this position for 30 seconds and repeat 3 times.



Pectoralis Major Stretch

- 1 > Anchor the Dura-Band® about Hip height by closing the strap in a doorway.
- 2 > With one hand holding the handle, back up until the arm is straight and no slack in the Dura-Band®.
- 3 > Face away from the door and take one step forward with the opposite foot.
- 4 > The arm holding the strap should almost be directly behind you as you keep your shoulders and hips squared to the wall in front of you.
- 5 > Hold this position for 30 seconds and repeat 3 times.

To order Neck Strengthening, Flexibility or Balance kits, please visit duraband.com



NECK STRENGTHENING KIT

FLEXIBILITY KIT

BALANCE DISC KIT

UTILIZING THE BALANCE DISC

INSTRUCTIONS AND DISCLAIMER:

- 1 > Before starting any exercise program, consult with your medical professional.
- 2 > If you have a history of falls or balance disorders, please consult your physician before attempting any of these exercises.
- 3 > Adult supervision is suggested for minors.
- 4 > Perform every exercise with proper form in a steady, controlled motion. Begin by attempting each exercise with your eyes open on a level floor away from furniture or other objects you may stumble or fall into.
- 5 > Do not progress sets or reps, attempt to use the balance disc, or attempt to perform the exercises with your eyes closed if the exercise cannot be performed with proper form for all sets and repetitions with eyes open while standing on a stable surface.
- 6 > Place Balance disc on a level floor as shown in the pictures, making sure it does not easily slide around. A floor without carpet is best.
- 7 > In general, begin all exercises with one set of the suggested repetitions to assure the exercise is able to be performed and progress to the full recommended sets and reps as you are able.



Single Leg Balance on Disc

- 1 > Assume a single leg standing position on the balance disc.
- 2 > Use your core and lower extremity muscles to control your center of mass to maintain your balance.
- 3 > Perform for 15 seconds.
- 4 > Switch and perform on opposite leg.



Single Leg Balance on Disc with Cervical Rotation

- 1 > Assume a single leg standing position on the balance disc.
- 2 > Use your core and lower extremity muscles to control your center of mass to maintain your balance and look over one shoulder and then look over the other shoulder.
- 3 > Perform for 15 seconds.
- 4 > Switch and perform on opposite leg.



Squats on Disc

- 1 > Stand with both feet on the balance disc.
- 2 > Use your core and lower extremity muscles to maintain your balance as you lower yourself halfway to a seated position and then back up to the starting position.
- 3 > Perform for 10 times.
- 4 > Repeat 3 times.



Plank on Disc

- 1 > Lie face down balancing on your elbows on the balance disc while elevating your hips above the ground, keeping your body in a straight line.
- 2 > Use your core, upper and lower extremity muscles to maintain a static position throughout the exercise.
- 3 > Hold for 15 seconds.
- 4 > To increase difficulty, you can attempt with eyes closed.



Side Plank on Disc

- 1 > Lie on your side with your elbow balancing on the disc while keeping your body in a straight line with your top arm.
- 2 > Use your core and extremity muscles to maintain a static position throughout the exercise.
- 3 > Hold for 15 seconds, switch, and perform on opposite side.
- 4 > To increase difficulty, you can attempt with eyes closed.



Push Up on Balance Disc

- 1 > Lie face down with the balance disc under your knees and hands on the floor.
- 2 > Keeping your core muscles tight, perform a push-up while balancing your knees on the disc.
- 3 > Perform 10 times.
- 4 > Repeat 3 times.
- 5 > To increase difficulty, perform with disc positioned under your feet.



Push Up with Feet on Disc

- 1 > Lie face down with the balance disc under your feet and hands on the floor.
- 2 > Keeping your core muscles tight, perform a push-up while balancing your feet on the disc.
- 3 > Perform 10 times.
- 4 > Repeat 3 times.



PERFORMANCE EATING FOR ATHLETES

Jeffrey Lucchino MS RDN CSSD - Sports Dietitian, UPMC Sports Medicine



Nutrition is the lifeblood of athletic performance. The fuel an athlete consumes is an essential part of their sports equipment. Every athlete has a game day/training check list that includes shoes, skates, head bands or even lucky socks; however that list needs to include nutrition! Nutrition *[fueling and refueling]* should be at the top of that equipment list that every athlete checks off each and every day!

1 > ARE YOU FUELING ENOUGH?

Everyone has different caloric needs, and this is based off of height, weight, age, physical activity, and gender. Whatever your goal, providing your body with enough calories is crucial for optimal performance. Consulting with a Sports Dietitian is the right move to ensure proper energy consumption. Besides caloric intake, here are some other areas that play a big part in a young athlete's performance:

HYDRATE FOR HEALTH

When and How much to Drink

- Minimum amount per day 9-12 cups, 8oz cups [72-96oz]
- What beverages and foods are ideal?

BEVERAGES: Milk, Juice [100%], Water, Fruit Smoothies, and Sports Drinks *(only around activity)*

FOODS: Fruits *(watermelon, applesauce, starfruit, and melons are over 90% water)*, Vegetables *(iceberg lettuce, cucumber, celery, tomatoes, green peppers, spinach, baby carrots, and cauliflower are over 90% water)*, Soups, and Yogurts

What about Before, During and After Activity?

| WEIGHT OF ATHLETE | BEFORE EXERCISE <i>[1-4 hours prior to]</i> | DURING EXERCISE <i>[Every 15 minutes- Small gulps]</i> | AFTER ACTIVITY <i>[Every hour for 1-2 hours after activity]</i> |
|-------------------|--|---|--|
| 60lb [27kg] | ¾ cup [6oz] | 3oz | 4oz |
| 80lb [36kg] | 2 cups [16oz] | 4oz | 6oz |
| 100lb [45kg] | 2 ½ cups [20oz] | 5oz | 6-8oz |
| 120lb [54kg] | 3 cups [24oz] | 6oz | 8oz |
| 150lb [68kg] | 3 ¾ cups [30oz] | 8oz | 8-10oz |

Establishing a Hydration plan

Don't wait for the day of the completion to establish a hydration plan. Hydration takes place all week long. It typically takes the body 8-12 hours to rehydrate from an intense, long duration workout session. Loss of 1-2% or greater of bodyweight due to dehydration can impair performance and lead to chronic fatigue.

How do you monitor Hydration Status?

WEIGHT CHECKS: *(before and after exercise)* for every pound lost replace with 16-24oz of fluid

THIRST: estimate thirst level by using a number on a scale, where 1 is not thirsty at all, 9 is extremely thirsty. If the rating is around 3-5, assume there is mild dehydration *[1-2% loss]*

URINE COLOR: Golden yellow similar to lemonade *(Hydrated)*, brownish-green *(dehydrated)*

What are other signs of Dehydration?

| | | |
|-----------|---------------------------|----------|
| Cramps | Weakness | Headache |
| Nausea | Impaired Performance | Fatigue |
| Dry Mouth | Dizziness/lightheadedness | |

There is such a thing as over-hydrating *(aka water intoxication)*. Body is like a sponge, we can only absorb so much.

Daily Fluid game Plan:

- Fluid consumption within first hour of being awake: 16-24oz
- Fluid consumption with each meal: 16-20oz
- Fluid consumption with each snack: 16oz

For Practice/Training

- The goal of drinking before you exercise is to start exercise with having water balance *[Don't just drink around your activity, keep fluid intake consistent across the day]*
- 16-20oz 1 hour before training-water or Sports Drink is ideal
- 12-32oz fluid per hour-light sweaters can be at the lower end of the range

- Heavy sweaters will need to be at the higher end of the range
- If you're a heavy sweater, consume snacks and beverages prior to activity that are higher in salt (*sports drinks, soups, pickles, and pretzels*)

During Practice/Training

- Larger gulps over sips (*moves through the digestive track quicker, and therefore gets into the cells quicker*)
- Try to swallow fluids, spitting is not preferred but you still obtain some fluid
- Slow down drinking when you start feeling the sloshy, feeling in your stomach
- Sports Drinks over water during long duration, high intensity training sessions (*60 minutes +*)
- Avoid soda and energy drinks pre, during, and after practice/training



HOW DO YOU PROGRAM PERSONAL HYDRATION?

1 > Step on a scale before and after training sessions

(minimal clothing as possible)

2 > Post practice result

- Weigh less: Consume more fluids
- Weigh more/same: Still consume fluids, but cut back on the amount

3 > To be precise with hydration, calculate your sweat rate:

- Weigh yourself before activity (*pre-weight*) – and post exercise (*post-weight*)
- For every pound lost, consume 16oz of fluids (*2lbs lost = 32oz*)

+ **ADD** the number of ounces of fluid you consumed during practice

(Try to bring a measured out water bottle and calculate how many ounces or how many times you filled it up)

÷ **DIVIDE** the number of hours you exercise

= **EQUALS** your hourly sweat rate, this gives you the programmed hydration to know how much fluid you need to consume per hour

EXAMPLE

▪ 150lb (*pre-training*) – 148lb (*post-training*) = 2lbs lost = 32oz needed to consume

▪ 32oz (*for 2lbs lost*) + 16oz (*consumed during practice*) ÷ 2 hours (*practice time*)

TOTAL FLUID LOSS of 48oz ÷ 2 hours (*practice time*)

SWEAT RATE PER HOUR = 24oz/hr

What about Electrolytes?

Sweat contains more than just water; it has electrically charged particles (electrolytes, more commonly called minerals) that keep water in the right balance inside and outside of your cells. The amount of electrolytes you lose depends on how much you sweat, your genetics, your dietary intake, and how well you are acclimatized to the training and environment.

Electrolyte Loss in Sweat

| ELECTROLYTE | AVERAGE AMOUNT LOST IN 2LB (1L, 1QT) OF SWEAT | FOOD COMPARISON |
|-------------|---|---------------------------|
| Sodium | 800mg | 1 liter of Gatorade=440mg |
| Potassium | 200mg | 1 medium banana=450mg |
| Calcium | 20mg | 8oz yogurt=300mg |
| Magnesium | 10mg | 2tbsp peanut butter=50mg |

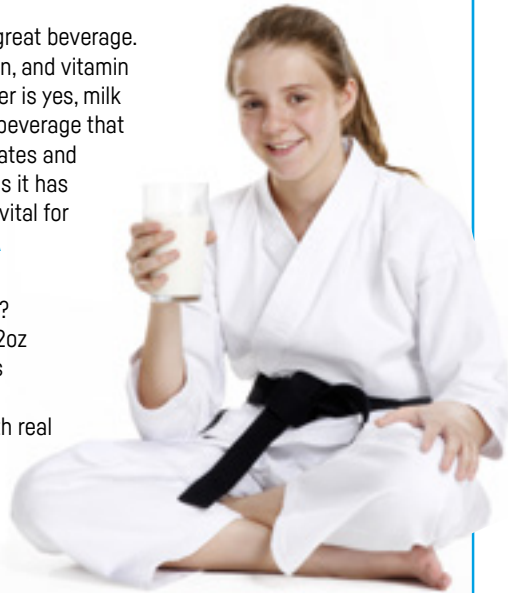
If you sweat profusely, and are left with caked salt on your forehead, arms, legs, and experience cramping, take a closer look at adding more sodium to your beverages and food.

Observe the following guidelines for adding more sodium to your intake:

- Consume salted foods and fluids (*soups, pretzels, salted oatmeal*) 90 minutes prior to exercise.
- Use salt, soy or Worcestershire sauce with your pre-competition meal
- Consume an endurance sports drink with high sodium amounts (*110-170 milligrams of sodium per 8oz*). You can also add salt to your current sports drink if it falls short of the sodium recommendation (*1/4 tsp added to 20oz sports drink or 1/2 tsp added to 32oz drink*)
- Consume salty foods during the event/training, as tolerated (*V8 juice, broth, pickles, pretzels*)

Grade the Beverage:

- **MILK:** there's no doubt that milk is a great beverage. It contains calcium, potassium, protein, and vitamin D. Is it good for an athlete? The answer is yes, milk is a fantastic post-workout recovery beverage that contains the right blend of carbohydrates and protein for post workout recovery. Plus it has extra bone forming minerals that are vital for a young athlete's growth. **GRADE: A**
- **JUICE:** Juice is sometimes a staple beverage for an athlete, but is it ideal? Juice should overall be limited to 8-12oz per day of 100% fruit juice. Juice does offer some vitamins, minerals, and carbohydrates. But in comparison with real fruit or vegetables, juice doesn't compare. In moderation it's okay, but not as a staple beverage. **GRADE: B**
- **SODA:** Soda contains refined sugar, caffeine, and does not offer varied sources of carbohydrates for muscles to perform and recovery properly. It also does not offer any sort of nutritional value. Regular soda consumption has been known to cause weight gain. Soda is not an ideal beverage around competition, and should be limited throughout the day. **GRADE: D**
- **ENERGY DRINKS:** Red Bull, Rock Star, Amp, Monster Energy and 5-Hour Energy: First, who doesn't want to be a Rock-Star on the athletic playing field? Energy drinks won't get you there, what they will get you is a serious downside. Energy drink consumption may result in cramping, headaches, and dehydration. The number of Emergency room visits related to energy drinks has doubled from 2007-2011, and continuous to rise. High caffeine-containing drinks have no place around competition. **GRADE: F**



2 > MEAL FREQUENCY, ESSENTIALS, AND SPACING

- Space meals and snacks throughout the day
- Always start the day with breakfast-a balanced meal to start the day provides early fuel for your muscles and brain
- Strive for having a meal or a snack every 3-4 hours
- Make sure water is also available to stay hydrated, and assist with digestion during a meal or snack.

3 > CARBOHYDRATES: PERFORMANCE PLATE

What are some good sources of carbohydrates?

| | |
|-----------|-------------------------------|
| Bread | Vegetables |
| Bagels | 100% Fruit or Vegetable Juice |
| Tortillas | Whole Wheat/ Grain Crackers |
| Rice | Pretzels |
| Pasta | Cereals |
| Quinoa | Oatmeal |
| Barley | Milk |
| Potatoes | Lentils |
| Corn | |
| Fruit | |



What types of carbohydrates should you limit?

| | | | |
|----------|---------|-----------|-------------------------------|
| Pastries | Chips | Ice Cream | French Fries |
| Candy | Cookies | Soda | Fruit Drinks (added sugar) |

These foods also contain a high amount of sugar and lack the nutritional value that the above carbohydrates contain.

$\frac{2}{3}$ - $\frac{1}{2}$ of the plate should be carbohydrates at every meal and snack

- Fuel for the muscles during activity
- Fuel for the brain during exercise
- Recovery to prepare for the next training session



4 > PROTEIN: MUSCLE GROWTH, IMMUNE SUPPORT, AND MUSCLE REPAIR

Protein Recommendations

| TYPE OF INDIVIDUAL | GRAMS OF PROTEIN PER LB BODYWEIGHT |
|-------------------------------|------------------------------------|
| Sedentary | .4 |
| Recreational, adult | .5-.7 |
| Endurance athlete, adult | .6-.7 |
| Growing teenage athlete | .7-.9 |
| Adult building muscle mass | .7-.8 |
| Athlete trying to lose weight | .8-.9 |
| Upper requirement for adults | .9 |

What are some good sources of protein?

| | |
|----------------|-----------------|
| Egg white/Eggs | Turkey |
| Nuts | Fish/shellfish |
| Low-Fat Cheese | Tofu |
| Jerky | Lean Beef (90%) |
| Low-Fat Milk | Lentils |
| Seeds | Pork |
| Yogurt | Beans |
| Nut Butter | Chicken |
| Cottage Cheese | Hummus |



Due to Total Fat and Saturated, try to limit:

| | | | |
|-----------------|------------------|------------|-------------|
| Bacon | Pepperoni | Sausage | Fried Meats |
| Full Fat Cheese | 80%, Ground Beef | Whole Milk | Hot Dogs |

1/3- 1/4 of the plate should be protein at every meal

- Helps build and repair muscle tissue
- Keeps satiety high between meals
- Prevents the body from using protein as a fuel source

Protein pre and post training

- 10-20 grams pre/post training with carbohydrates
- Consider easy digestible food and beverage sources such as milk, yogurt (*Greek*), or even Whey Isolate protein powder. These foods and beverages are high in amino acids, which help stimulate protein synthesis.
- Protein subdues pre and post workout hunger

5 > FAT: EAT THE RIGHT KIND!

Include good sources of fat as part of your dietary plan

Good Sources of unsaturated fat include the following:

| | |
|---|------------------------------------|
| Fish (<i>Tuna, Salmon, Herring, & Mackerel</i>) | Olives |
| Nuts | Soybean oil |
| Guacamole | Olive Oil (<i>Extra Virgin</i>) |
| Nut Butters | Flaxseed (<i>ground and oil</i>) |
| Mayonnaise | Canola oil |
| Seeds | Avocados |
| Sunflower, corn and safflower oil | Soft Margarines |



Due to Saturated Fat and Trans Fat, try to limit:

| | | | |
|------------------|--------|---------------|-----------------|
| Creamy Dressings | Lard | Creamy Sauces | Shortening |
| Sour Cream | Butter | Cream Cheese | Stick Margarine |

Key points regarding fat intake:

- Everyone needs fat in their dietary intake
- Dietary Fat should make up 20-30% of total intake
- Limit the amount of fatty foods before and after exercise!
- Fat is our long, enduring energy source, we store 10's of thousands of calories of fat for energy purposes



6 > SUPPLEMENTS: DO THEY REALLY WORK?

If I had a dollar for every time an athlete came up to me and said “WHICH SUPPLEMENT SHOULD I BE TAKING?” I wouldn’t be a millionaire, but I would have a nice little nest egg built up. There are many supplements out on the market, and most are very confusing and intimidating. Let’s examine a few:

Creatine

Creatine is actually found in familiar foods such as beef, poultry, and fish, but in smaller amounts compared to the supplement. Creatine may increase the power and force during exercise bouts and may increase athletic performance with repeated activity.

This used to be the ideal supplement that every athlete took. Now creatine is combined with a variety of other ingredients to “enhance” its affects. There is very little research behind use of creatine and positive effects on teens, the studies have been performed on adults. **THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM) ADVISE AGAINST THE USE OF CREATINE BY ATHLETES UNDER THE AGE OF 18**, and I would agree.

Protein and Amino Acids

Athletes use both protein and amino acids for recovery, improving performance, and increasing strength. But simply consuming more protein and amino acids does not increase strength or muscle mass, but it can have a positive effect on the body’s response to training. Eating a well-balanced dietary intake can provide the body with enough protein, and amino acids to support an improvement in athletic performance.

Guarana

A central nervous system stimulant (*just like caffeine*) is commonly found in energy drinks. Guarana actually contains twice the concentration of caffeine found in coffee. There is no evidence that this ingredient can enhance athletic performance, and is not recommended for young athletes.



ACUTE AND OVERUSE INJURY PREVENTION



As a parent, it is important to understand the causes of overuse and acute injuries and what you can do to help avoid them. Acute injuries are common types of sport-related injuries such as ligament sprains (mostly ankle), muscle strains and/or bone or growth plate injuries. Repetitive strain, or “micro-trauma,” to the tendons, bones, and joints are what cause overuse injuries such as “little league elbow” and stress fractures. Risks of overuse injuries are more severe in children than adults as growing bones of a young athlete cannot handle as much stress. The UPMC Sports Medicine Team of experts, which includes orthopaedic surgeons, sports medicine primary care physicians, board certified physical therapist and licensed athletic trainers are trained to manage these injuries and to take the young athlete through the same process of care that professional and elite athletes receive.



Services include but are not limited to:

- Injury management
- Rehabilitation
- Sports nutrition
- Strength and conditioning
- Mental training
- Concussion management

CONTACT INJURIES

Any part of the body that is not protected by equipment is susceptible to a contact injury. Some of the more common points of contact injury are listed below:

Shoulders

Typically, hockey players suffer a shoulder separation or broken collarbone due to contact with players, boards, or the ice.

Elbows

The point of the elbow is a frequent area of contact, which can result in the development of bursitis. The best prevention method is wearing elbow pads that fit well and have an opening for the elbow, soft padding, and a plastic outer shell.

Wrists

A fall on the outstretched arm that forces the wrist up or down may cause a fracture.

Hip and groin injuries

A direct blow to the outside of the hip can cause a hip pointer or trochanteric bursitis. Hockey pants with reinforced padding over these vulnerable areas may help protect them.

Knee injuries

The anterior cruciate ligament (ACL) tear is a common knee injury in football, basketball and soccer. The ACL may tear suddenly and without warning when an individual decelerates, cuts to the side, or lands awkwardly.

Causes of Hockey Injuries

- Inappropriate or ill-fitting equipment
- Not following rules and regulations
- Violent behavior
- Pre-existing injuries
- Poor warm-up before games
- Poor hockey-specific conditioning
- Poor lower extremity flexibility
- Poor core strength



EDUCATION AND BASELINE CONCUSSION TESTING

HEADS UP Pittsburgh is a partnership between UPMC Sports Medicine and the Pittsburgh Penguins Foundation to offer free baseline concussion testing, as well as educational programs, to youth hockey players in the Pennsylvania Interscholastic Hockey League (PIHL) and Pittsburgh Amateur Hockey League (PAHL).

The Center for Disease Control and Prevention (CDC) and Community College of Allegheny County (CCAC) also are playing key roles in HEADS UP Pittsburgh, which is funded by the Penguins Foundation.



For more information on HEADS UP Pittsburgh visit us at: pittsburghpenguinsfoundation.org



CONCUSSION PREVENTION, RECOGNITION AND RESPONSE



About 90 percent of concussions occur without the loss of consciousness so knowing the signs and symptoms of a concussion is crucial as a parent. Concussions are a brain injury. This occurs when a bump, blow or jolt to the head changes the way the brain normally works.

Even though a collision may leave athletes thinking they are still able to play, it doesn't mean they haven't suffered a concussion. Staff, coaches, parents, and athletes understand the symptoms of a concussion, which primarily include mental foginess and a headache. All suspected concussions should be medically evaluated. UPMC Sports Medicine and the Pittsburgh Penguins Foundation offer free hockey baseline concussion testing during the summer.

What is a concussion?

A concussion is a disturbance in brain function that occurs following either a blow to the head or as a result of violent shaking of the head.

What are the symptoms of a concussion?

Although the classic symptoms of loss of consciousness, confusion, memory loss, and/or balance problems may be present in some athletes with a mild concussion, there may or may not be obvious signs that a concussion has occurred. Symptoms may not be present immediately after the hit or play. It is important to take time to perform a full evaluation of the player to determine whether a concussion occurred before allowing them to return to the game or practice.

A majority of young athletes who experience a concussion will be symptom free in one to two weeks. However, some young athletes may have persistent symptoms that require further evaluation and frequent follow-ups with a physician or concussion specialist. Persistent symptoms may interfere with the young athlete's ability to complete tasks in school or daily life.

Due to signs, symptoms, and impairments associated with a concussion, the Center for Disease Control is now classifying concussions as a traumatic brain injury.

What can I allow my athlete to do after a suspected concussion?

- Take pain medication as prescribed by your health care provider
- Use an ice pack on the head and/or neck for comfort
- Sleep/Rest

What should I do if I think I have a concussion?

- **TELL YOUR COACHES AND YOUR PARENTS.** Never ignore a bump or blow to the head even if you feel fine. Also, tell your coach if one of your teammates might have a concussion.
- **GIVE YOURSELF TIME TO GET BETTER.** If you have had a concussion, your brain needs time to heal. While your brain is still healing, you are much more likely to have a second concussion. Second or later concussions can cause damage to your brain. It is important to rest until you get approval from a doctor or health care professional to return to play.

What should I do if I suspect my son/daughter has suffered a concussion?

- Go to the Emergency Room
- Follow up with your PCP
- Contact the UPMC Sports Concussion Program at 412.432.3681

What activities should the athlete avoid after a concussion?

- Do not text or play computer games
- Do not drive while symptoms are present
- Do not participate in any physical activity until cleared by your health care professional or the UPMC Sports Concussion Program
- Do not exercise or lift weights – this will increase heart rate and blood pressure which could increase symptoms
- Do not drink alcohol



Should my child stay home from school after a concussion?

Students who experience symptoms of a concussion often need extra help to perform school-related activities and may not perform at their best on classroom or standardized tests. If the athlete exhibits severe symptoms where they cannot concentrate for more than 30 to 45 minutes, staying home may be indicated until symptoms improve. If symptoms are less severe, rest breaks during school can help with the recovery process.

When can my child return to play after a concussion?

An athlete should not participate in physical education class, physical activity at recess, sports practices, or games when symptoms are present. The injured person should never return to sports or active recreation with any symptoms unless directed by a health care professional.

How can I reduce the likelihood of a concussion?

Every sport is different, but there are steps you can take to protect yourself.

- Follow your coach's rules for safety and the rules of the sport
- Practice good sportsmanship at all times
- Use the proper sports equipment, including personal protective equipment (such as helmets, padding, shin guards, and eye and mouth guards) In order for equipment to protect you, it must be:
 - The right equipment for the game, position, or activity
 - Worn correctly and fit well
 - Used every time you play



For more information about concussions:

FROM THE CDC:

<http://www.cdc.gov/headsup/index.html>

FROM UPMC SPORTS MEDICINE:

<http://www.upmc.com/Services/sports-medicine/services/concussion/Pages/default.aspx>

FROM IMPACT:

<http://impacttest.com/about/background>

FROM PITTSBURGH PENGUINS FOUNDATION:

<http://www.pittsburghpenguinsfoundation.org>

INQUIRIES ABOUT HEADS UP PITTSBURGH:

info@pittsburghpenguinsfoundation.com



WHAT IS BASELINE TESTING?

HEADS UP PITTSBURGH will use a computer based online test called ImPACT® to establish a baseline of normal cognitive function for each individual athlete. The BASELINE test will then be used as part of a comprehensive clinical evaluation to determine recovery following a concussion.

How does the BASELINE test (ImPACT®) work?

The test takes approximately 30 minutes and is designed to evaluate and document multiple aspects of an athlete's neuro-cognitive state – brain processing speed, memory, and visual motor skills. All NHL players undergo such a test.

The BASELINE ImPACT® (Immediate Post-Concussion Assessment and Cognitive Testing) test is used to establish a benchmark score when a player is in his or her non-concussed or “normal” state.

IT SHOULD BE NOTED THAT...

This BASELINE test does not evaluate the subject for a concussion, identify past concussion(s), prevent future concussions or determine if your son or daughter is predisposed to a concussion.

The result of the BASELINE test is used as a benchmark (comparison) tool to determine if your son or daughter can safely return to play following a subsequently incurred concussion.

If for any reason you think your son or daughter may have had a hit to the head or any other potential for a concussion prior to taking this BASELINE test, it is strongly recommended that he or she seek medical care from the UPMC Sports Medicine Concussion experts.

UPMC Sports Medicine is an official Certified IMPACT® Consultation (CIC) testing location. Additional information regarding the concussion program is available on the Sports Medicine website at: www.upmc.com/hockeytesting



FACTS ABOUT CONCUSSIONS

- Concussion manifestations vary from individual to individual
- A concussion is a brain injury
- All concussions are serious
- Most concussions occur without loss of consciousness
- Concussions can occur in any sport or recreational activity
- Recognition and proper response to concussions when they first occur can help prevent further injury or even death
- Athletes who have had a concussion are at increased risk for another concussion
- Younger athletes (in high school or in lower grades) have been shown to exhibit longer recovery times when compared to college and professional athletes
- Concussions seem to have more symptoms and last longer in females
- There may be a significant risk if players return to play too quickly
- A repeat concussion that occurs before the brain recovers from the first – usually within a short period of time (hours, days or weeks) – can slow recovery or increase the likelihood of having long-term problems
- Many concussions go undiagnosed and unreported because signs and symptoms can vary from athlete to athlete
- Traditional procedures, such as a CT, MRI and EEG, are not consistently useful in evaluating the effects of a concussion

Signs and Symptoms

Athletes who experience any of the signs and symptoms listed below after a bump, blow, or jolt to the head or body may have a concussion.

| SIGNS OBSERVED WBV COACHING STAFF | SYMPTOMS REPORTED BY ATHLETE |
|--|--|
| Appears dazed or stunned | Headache or “pressure” in head |
| Is confused about assignment or position | Nausea or vomiting |
| Forgets an instruction | Balance problems or dizziness |
| Is unsure of game, score, or opponent | Double or blurry vision |
| Moves clumsily | Sensitivity to light |
| Answers questions slowly | Sensitivity to noise |
| Loses consciousness (even briefly) | Feeling sluggish, hazy, foggy, or groggy |
| Shows mood, behavior, or personality changes | Concentration or memory problems |
| Can’t recall events prior to hit or fall | Confusion |
| Can’t recall events after hit or fall | Does not “feel right” or is “feeling down” |

For more information and safety resources, visit: <http://www.cdc.gov/headsup/index.html>

CONCUSSION RECOVERY PROCESS



Each concussion should be treated individually depending on the symptoms and evaluation test results. The following recommendations are made to improve concussion management and speed the recovery process:

- 1** > No adolescent with a concussion should continue to play or return to a game after sustaining a concussion.
- 2** > An individual sustaining a concussion should cease doing any activity that causes the symptoms of a concussion to increase.
- 3** > School attendance and activities may need to be modified.
- 4** > Neuro-cognitive testing is an important component of concussion management.
- 5** > No athlete should return to contact competitive sports until they are symptom free, both at rest and with exercise, and have a normal evaluation.
- 6** > All sports and health education programs should teach students the specific signs and symptoms of concussions.



1 > NO ADOLESCENT WITH A CONCUSSION SHOULD CONTINUE TO PLAY OR RETURN TO A GAME AFTER SUSTAINING A CONCUSSION.

Athletes continuing to play (exercise) or receiving multiple blows to the head, after suffering a concussion, may take longer to recover from a concussion. They also may be more at risk for developing Post-Concussion Syndrome.

Immediate Evaluation and Exam after a Concussion:

- While it is important to do a neurological exam to rule out a bleed, it is normal in the vast majority of patients. Occasional balance problems or nystagmus on lateral gaze may be found and they usually disappear as the patient recovers.
- CT scans and MRIs of the head are usually normal and are not necessary unless the patient has increasing symptoms or there is concern that there might be a bleed (research indicates that functional MRIs and PET scans can show the area of the brain affected).

2 > AN INDIVIDUAL SUSTAINING A CONCUSSION SHOULD CEASE DOING ANY ACTIVITY THAT CAUSES THE SYMPTOMS OF A CONCUSSION TO INCREASE (E.G. HEADACHES, DIZZINESS, NAUSEA, ETC.).

- Due to the metabolic imbalance that occurs following a concussion, it has been shown that increased blood flow to the brain during recovery may impede or slow down the recovery process and worsen the symptoms of a concussion. Most patients do not need to be placed on bed rest unless they are having severe symptoms (severe headaches, marked photophobia, disorientation, balance problems, extreme fatigue, etc). They may participate in any activity that doesn't cause increased symptoms (headaches). In some cases, activities such as reading, watching TV, working at the computer, taking hot baths and having heated discussions with others may increase symptoms.
- If patients develop increased symptoms while doing a specific activity, that activity should be discontinued.
- Many concussed individuals may be unable to concentrate (focus). They may not be able to read or absorb material and may develop an increased headache while doing so. When this occurs, they might be able to participate in an activity for only a few minutes before symptoms increase. If a rest break can be interspersed between those few minute intervals, these activities can be done. As the symptoms abate, longer intervals can be spent reading, watching TV and using the computer. Continuing activities or exercise that increases symptoms can delay the recovery from the concussion.
- Tylenol can be used to help headache symptoms.



3 > SCHOOL ATTENDANCE AND ACTIVITIES MAY NEED TO BE MODIFIED.

School

While some individuals may be able to attend school without increasing their symptoms, the majority will probably need some modifications depending on the nature of the symptoms.

Trial and error may be needed to discover what they can and cannot do.

- If students are unable to attend school for an entire day without symptoms, they may attend for a half day. Some students may only be able to attend for one period, some not at all, due to severe headaches or other symptoms. Frequent breaks with rest periods in the nurse's office may be necessary. Often, alternating a class with a rest period may be helpful. Math causes more symptoms in patients than other subject classes. As recovery proceeds, hours spent in school may be gradually increased.
- Depending on their symptoms, some students may need to be driven to school to avoid walking and should be given elevator passes to avoid stairs. They should not attend gym or exercise classes.
- Workload and homework may need to be reduced. Frequent breaks while doing homework may be helpful. Term papers should be postponed. Pre-printed class notes and tutors may help to relieve the pressure of schoolwork.

Tests

If there are concentration and memory problems, quizzes, tests, PSAT tests, SAT tests and final exams should be delayed or postponed. If test results are poor, a note to the school should request that the scores be voided. Extra time (un-timed tests) may be necessary initially when test taking is resumed.



Activities

If noise causes increased symptoms, students with concussions should not listen to loud music (especially in cars or on their i-Pods). They should avoid attending dances, parties, music concerts and sporting events until the hyperacusis is gone.

If light causes increased symptoms or students have photophobia, they should avoid bright sunlight and exposure to flashing lights (computer and video games). Sunglasses may be necessary.

4 > NEURO-COGNITIVE TESTING IS AN IMPORTANT COMPONENT FOR THE MANAGEMENT OF CONCUSSIONS.

The use of neuro-cognitive testing is one piece of the puzzle in assessing recovery from concussions and determining the timing of return to play. It should only be used as a tool, and should not be the only deciding factor in returning a concussed athlete to play. It provides objective data and prevents athletes who hide their symptoms from returning to play before they are fully recovered.

While there are several available tests to accomplish this, the one with the widest acceptance and the largest database is the ImPACT® Test. The ImPACT® Test is used by the NFL, NHL, and other professional sports organizations. ImPACT® is headquartered in Pittsburgh.

There are two parts of the test, the Symptom Score component and the six part neuro-cognitive test component. Both component scores should return to baseline or normal before an athlete is allowed to resume playing a contact sport.

Generally, the symptoms of a concussion disappear before the neuro-cognitive findings return to normal, although occasionally, this can be reversed. For example, a patient may have zero symptoms following a concussion but their ImPACT® test takes two weeks to return to normal. It is for these reasons that symptom evaluations alone cannot be used as the sole criteria for return to play.

Migraine headache concussion symptoms, as opposed to the usual generalized headache of a concussion, are predictive of poorer scores on ImPACT® testing and are associated with a longer healing time. Increased headaches often occur when taking the initial ImPACT® test after a concussion. The different components that are measured (verbal and visual memory, processing speed and reaction time) usually correlate with different regions of brain function that may be involved with the concussion.

Individuals who score well below expected levels of function initially (e.g. 1st percentile across all four summary scores) should be monitored very carefully as they will usually take longer to heal and may be more prone to developing Post-Concussion Syndrome.

They may need greater school or activity modification, perhaps not attending school for a prolonged period. Initial bed rest may be necessary.

Individuals with high reaction times (e.g. scores > .70 on ImPACT®) should not drive and initially might need greater activity modifications, sometimes even bed rest.

Increasingly poorer successive ImPACT® test scores will identify those individuals who continue to exercise or do activities that cause their symptoms to increase.





5 > NO ATHLETES SHOULD RETURN TO CONTACT COMPETITIVE SPORTS UNTIL THEY ARE SYMPTOM FREE, BOTH AT REST AND WITH EXERCISE AND HAVE NORMAL NEURO-COGNITIVE TESTING.

Usually concussed athletes will start to recover rapidly once the feelings of fogginess and being slowed down disappear. Students may literally wake up one morning and say, “Wow, I’m back to normal!” When they have no headaches or other concussion symptoms, athletes can begin the concussion graduated return-to-play exercise program that was recommended at the Prague Concussion Conference.

DAY 1: Walking for 20-30 minutes at a rate of 2-1/2 miles per hour

DAY 2: Jogging for 20-30 minutes

DAY 3: Running for 20-30 minutes

DAY 4: Performing sports specific practice drills

DAY 5: Return to contact sports if RECOMMENDATION #5 is met

If headaches or other symptoms occur, during any step, the activity needs to be stopped. The athlete should then wait 24 hours and start at the previous level again.

POST-CONCUSSION SYNDROME

Fortunately, Post-Concussion Syndrome occurs only occasionally but it is devastating to those individuals encountering it. It is usually defined as having concussion symptoms that last for greater than a month after the initial blow.

THE PROBLEMS THAT CAN DEVELOP ARE CATEGORIZED AS FOLLOWS:

Depression and Other Psychiatric Problems

Although depression may be caused by the concussion itself, the persistence of symptoms and being unable to play may also cause depression. Psychotherapy and anti-depressant medication may be warranted. Individuals with concussions often suffer frustration and anger due to the curtailment of their normal activities. They may not be able to participate in their chosen sport or attend school. Support groups may help individuals cope with their feelings.

Concentration and Memory Issues

Inability to concentrate (focus) and poor memory, often associated with increased headaches during schoolwork, may cause poor school attendance and performance. It can take months, or even longer, to recover from this. Methylphenidate or Strattera may be helpful. Full neuro-cognitive testing and rehabilitation may be indicated in some cases.

Sleep Issues

Initially, most concussed individuals are very fatigued and sleep more than usual. As the concussion persists, they may have difficulty falling asleep and sleep less than usual. Lack of sleep causes major difficulties and should be resolved before treating the next two issues. Sleep disorders can be treated with medications such as Elavil. Melatonin may also be of help in patients having difficulty falling asleep.

Some athletes may not be able to return to contact sports due to the long term symptoms they have suffered as a result of their concussion.

IN SUMMARY, each concussion should be treated individually. No one guideline will work for each patient. The general public, physicians, coaches, athletic trainers, parents, and the athletes themselves, must be educated about the signs, symptoms and treatment of concussions. Generally, the athlete may be unaware that they have sustained a concussion. In order to prevent poor outcomes from concussions, it is crucial to educate athletes.



ACTION PLAN

If you suspect that an athlete has a concussion, you should take the following four steps:

- 1** > Remove the athlete from play.
- 2** > Ensure that the athlete is evaluated by a health care professional experienced in evaluating concussions. DO NOT try to judge the seriousness of the injury yourself.
- 3** > Inform the athlete's parent(s) or guardian(s) about the possible concussion and give them a fact sheet on concussions.
- 4** > Keep the athlete out of play the day the injury occurred and until a health care professional, experienced in evaluating for concussions says they are symptom-free and it's OK to return to play.

IMPORTANT PHONE NUMBERS

EMERGENCY MEDICAL SERVICES

NAME: _____

PHONE: _____

HEALTH CARE PROFESSIONAL

NAME: _____

PHONE: _____

SCHOOL STAFF AVAILABLE DURING PRACTICE AND GAMES

NAME: _____

PHONE: _____

It's better to **MISS ONE GAME**
than the **WHOLE SEASON.**

PARENTS HEADS UP CHECKLIST



- Athlete has taken his/her pre-participation physical exam through your pediatrician or family doctor
- Schedule an ImPACT® baseline concussion test offered free through the Penguins Foundation
- Coaches and association have player's emergency information to include contact number, secondary contact, doctor info and allergies
- Established a "Buddy Parent" with one of the other team members parents for extraordinary situations
- Proper meal and hydration before, during and after practices and games
- Mandatory water breaks in game and at practice
- Equipment properly fitted with special attention to worn mouth guards
- Proper sleep and rest during the week
- Attend seminars on sports injuries and concussions
- Know the signs of concussions
- Ensure the athlete takes approximately 10 weeks off from any one sport during the year. Playing a different sport before or after their season is OK.

HOW CAN I TELL IF MY CHILD IS INJURED?



Most children will let you know when they are hurt, but for those kids who try to tough it out, parents and caregivers should watch for signs of injury such as:

- Avoiding putting weight on a certain body part (*e.g., ankle or wrist*) or favoring one side of the body over the other (*i.e., limping*)
- Appearing to be in pain when using a particular body part
- Inability to sleep
- Shortness of breath/trouble breathing during activity
- Headaches during or after activity
- Appearing to experience stiffness in the joints or muscles
- Dizziness or lightheadedness
- Difficulty sitting and/or climbing stairs
- Inability to feel the fingers or toes
- Experiencing unusual weakness
- Irritated skin and/or blisters

If your child experiences sharp, stabbing pain, he/she should stop the activity immediately. Playing through pain may make the injury worse and result in lost playing time. If you have any concerns that your child might be injured, speak with a physician or certified sports medicine professional immediately. The sooner an injury is diagnosed, the more effectively it can be treated, and the sooner an athlete can return to playing.

Some kids push their body to the extreme and lose sight of what's truly important – THEIR HEALTH!

The following are a few sample questions to ask your kids about their athletic activity and physical level of comfort, which may lead to more information associated with an injury:

- How was practice today? What kind of drills did you do?
- What was the most enjoyable part of today's practice/game?
- What did you learn today?
- That game was exciting. It looked like you started limping toward the end. What part of your foot is bothering you? Be specific about what you saw.



CROSSOVER BENEFITS



As your child becomes older, he or she will develop specific advanced skills directed towards one sport. It is important he or she does not miss out on the crossover benefits that are associated with playing additional sports. For example, an athlete's sharpened hand-eye coordination gained by playing lacrosse may carry over to a profound advantage when he or she plays hockey. Crucial and important skills are often interlinked from one sport to another, which will help the athlete be more successful with their primary sport.

| PRIMARY SPORT | CROSSOVER / SECONDARY SPORT | | |
|-------------------|-----------------------------|---------------------|-------------------------|
| | FALL | WINTER | SPRING |
| Hockey | Soccer/Cross Country | | Lacrosse |
| Football | | Hockey/Basketball | Track and Field |
| Wrestling | Cross Country | | Lacrosse/Track |
| Soccer | | Basketball/Swimming | Track |
| Water Polo | Soccer/Cross Country | | |
| Baseball/Softball | Lacrosse/Soccer | Basketball/Swimming | |
| Basketball | Volleyball/Football | | Track / Lacrosse |
| Lacrosse | Soccer | Hockey/Swimming | Track/Baseball/Softball |
| Cheerleading | Gymnastics | Skiing | Dance |

Muscular Imbalance

Muscle imbalances are commonly caused by insufficient flexibility or strength within your muscles. This can lead to further related imbalances and joint dysfunction that may take months or years to manifest.

Muscle Stiffness

Feeling of tension and contraction in the muscles, which may limit normal range of motion. Sometimes muscles feel stiff after periods of vigorous use, for example athletic activities, physical labor or weight lifting. Other times, muscles feel stiff after periods of inactivity, such as rising out of bed in the morning or getting out of a chair from a sitting position.

Muscle Overuse

Overuse injuries are the result of repetitive use, stress and trauma to the soft tissues of the body (muscles, tendons, bones and joints) when there is not enough time for proper healing. They are sometimes called cumulative trauma, or repetitive stress injuries.

GUIDELINES FOR PREVENTING H1N1



Young athletes can be exposed to increased germs as they share water bottles and equipment.

Some basic recommendations to reduce the likelihood of spreading the infection

- 1 > Provide individual water bottles. Do not share water bottles.
- 2 > Regularly wash hands.
- 3 > Clean workout gear for each practice/competition.
- 4 > Keep gloves on during the traditional handshake with opponents.

Individuals with influenza may develop typical signs or symptoms of: fever (102°degrees F or greater), cough, muscle aches, runny nose, headache, or sore throat with the potential for more serious complications, including pneumonia.

This year's influenza virus strain has particularly targeted children and young adults. Transmission of influenza virus may occur from the day before the onset of symptoms and during the 5-7 days that these symptoms are present.

INFECTED INDIVIDUALS SHOULD STAY HOME UNTIL SIGNS AND SYMPTOMS HAVE RESOLVED AND THEY HAVE NOT HAD A FEVER FOR AT LEAST 24 HOURS.
The 24-hour no-fever timeline should be achieved naturally, without the aid of fever reducing medications.



SPORTSMANSHIP

Most parents who watch their kids in athletic events have seen an inappropriate action involving a coach, player or another parent. To some, sports are all about winning, and the value of building teamwork and increasing physical fitness can be lost in the drive to come out on top. To overcome this pressure, it's important for parents to work together with coaches, athletes and other parents to create a positive athletic environment.

The following tips can help

- Place your child in the best and safest environment – with proper training and equipment – for them to enjoy and succeed in athletics.
- From the first day of practice, work with the coaches and other parents to define and communicate clear goals, values and procedures for everyone involved.
- Understand that some coaches in youth sports are volunteers who are not professionally trained. Travel team and high school coaches are more likely to be professionally trained and certified.
- Temper expectations of what you want for your child with the goals of the team and coaches. Remember that other parents and kids have their own expectations – which have to be considered equally to yours.
- Set realistic goals for your child, the team and the coaches
- Emphasize improved performance is key, not just winning
- Resist the temptation to recreate or reinvent your own athletic past through your child. Stay focused on your child's unique abilities, interests and goals.
- Remember to control your emotions at games and events. Maintain a positive attitude, and don't yell at other players, coaches, or officials.
- Be a role model. Show respect and your child will follow your example.
- Communicate openly. If you disagree with a coach's approach or the behavior of other parents, discuss it with them respectfully at an appropriate time and place.



It's better to
MISS ONE GAME
than the
WHOLE SEASON.



Expert Sports Medicine Services

Specialized Care for Young Athletes

Today, more kids than ever are involved in sports, and while that's a good thing, it also means more sports-related injuries. Young athletes are particularly susceptible to injury because they often participate in multiple sports at high levels of competition while their bodies are still maturing. They require special considerations for play and injury.

Young Athlete Program

The network of professionals at UPMC Sports Medicine provide individualized care for young athletes in the areas of injury management, rehabilitation, prevention, strength and conditioning, sports nutrition, mental training, and concussion management.

The UPMC Sports Medicine Team of experts, which includes orthopaedic surgeons, sports medicine primary care physicians, board certified physical therapist and licensed athletic trainers are trained to use cutting-edge evaluation and treatment techniques to speed recovery and restore function for young athletes. Our athletic trainers are treating student athletes at more than 40 schools throughout the area, and our sports performance coaches and other experts focus on injury prevention, nutrition, conditioning, and activity-specific training for young athletes at all skill levels.

A Reputation for Excellence

Whether you are an adult athlete in professional sports or a young athlete just getting started, at UPMC Sports Medicine you'll be given the wide range of world-class care that has earned us a reputation for excellence. We've been building our team of experts for more than two decades and have treated top athletes from around the world. We offer the region's widest range of services focusing on preventing and treating injury and illness, and helping athletes – young and old, professional and amateur – reach their peak performance.

Find out how UPMC Sports Medicine's Young Athlete Program can make a dynamic difference in your child's care.

For more information or to make an appointment:
Call 1.855.93.SPORT or visit UPMC.com/SportsMedicine.

UPMC Center for Sports Medicine SPORTS CONCUSSION PROGRAM

To schedule a concussion appointment
call UPMC at 412.432.3681

For Concussion BASELINE Testing and
all other Sports Medicine Services call 1.855.93.SPORT or visit
www.upmc.com/baselinetesting

SPORTS CONCUSSION PROGRAM

CONCUSSION SIGNS AND SYMPTOMS EVALUATION

SIGNS OBSERVED BY STAFF

- appears to be dazed or stunned
- is confused about assignment
- forgets plays
- is unsure of game, score, or opponent
- moves clumsily
- answers questions slowly
- loses consciousness (even temporarily)
- shows behavior or personality change
- forgets events prior to hit (retrograde)
- forgets events after hit (anterograde)

SYMPTOMS REPORTED BY ATHLETE

- headache
- nausea
- balance problems or dizziness
- double or fuzzy vision
- sensitivity to light or noise
- feeling sluggish
- feeling "foggy"
- change in sleep pattern
- concentration or memory problems

If symptoms of a concussion are experienced following a mechanism of injury, the athlete should not return to play until evaluated and cleared by an appropriate medical professional trained in the management of sport-related concussions.

To schedule an appointment call 412-432-3681

For more information, visit
www.upmc sportsmedicine.com